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EG&G - ROCKY FLATS PLANT  
ENVIRONMENTAL MANAGEMENT

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**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

Manual No.: 5-21000-OPS-FO  
Procedure No.: Table of Contents, Rev 13  
Page: 1 of 2  
Effective Date: 05/12/92  
Organization: Environmental Management

THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:

VOLUME I: FIELD OPERATIONS (FO)  
VOLUME II: GROUNDWATER (GW)  
VOLUME III: GEOTECHNICAL (GT)  
VOLUME IV: SURFACE WATER (SW)  
VOLUME V: ECOLOGY (EE)  
VOLUME VI: AIR (AP)

**TABLE OF CONTENTS  
FOR VOLUME I: FIELD OPERATIONS**

<b><u>Procedure No.</u></b>	<b><u>Title</u></b>	<b><u>Rev. No.</u></b>	<b><u>Effective Date</u></b>
FO.01	Air Monitoring and Dust Control	1	08/30/91
FO.02	Transmittal of Field QA Records	2	09/23/91
FO.03	General Equipment Decontamination	2	05/12/92
FO.04	Heavy Equipment Decontamination	2	05/12/92
DCN 92.01	Clarification of Work Area	1	01/31/92
DCN 92.02	Clarification of Center Bit Decontamination	1	03/12/92
FO.05	Handling of Purge and Development Water	2	05/12/92
FO.06	Handling of Personal Protective Equipment	2	05/12/92
FO.07	Handling of Decontamination Water and Wash Water	2	05/12/92
FO.08	Handling of Drilling Fluids and Cuttings	2	05/12/92
FO.09	Handling of Residual Samples	1	08/30/91
FO.10	Receiving, Labeling, and Handling Environmental Materials Containers	2	05/12/92

**ADMIN RECORD**

A-SW-001026

REVIEWED FOR CLASSIFICATION/UCI

By

Date

*[Signature]*  
May 18, 1992

*[Signature]* 5/92

**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

**Manual No.: 5-21000-OPS-FO**  
**Procedure No.: Table of Contents, Rev 13**  
**Page: 2 of 2**  
**Effective Date: 05/12/92**  
**Organization: Environmental Management**

<b><u>Procedure No.</u></b>	<b><u>Title</u></b>	<b><u>Rev. No.</u></b>	<b><u>Effective Date</u></b>
FO.11	Field Communications	2	05/12/92
FO.12	Decontamination Facility Operations	2	05/12/92
FO.13	Containerization, Preserving, Handling and Shipping of Soil and Water Samples	2	05/12/92
FO.14	Field Data Management	2	05/12/92
FO.15	Photoionization Detectors (PIDs) and Flame Ionization Detectors (FIDs)	2	05/12/92
FO.16	Field Radiological Measurements	2	05/12/92
DCN 92.04	Clarification of Seismic Lines	1	04/13/92
FO.17	Determining Out-Of-Specification Analytical Results for Environmental Samples		To Be Added
FO.18	Environmental Sample Radioactivity Content Screening	2	05/12/92
FO.19	Base Laboratory Work	1	08/30/91

**DECONTAMINATION FACILITY OPERATIONS**

EG&G ROCKY FLATS PLANT  
EMD MANUAL OPERATION SOP

Manual:  
Procedure No.:  
Page:  
Effective Date:  
Organization:

5-21000-OPS  
FO.12, Rev. 2  
1 of 21  
March 1, 1992  
Environmental Management

Category 2

TITLE:  
DECONTAMINATION FACILITY  
OPERATIONS

Approved By:

*[Signature]*  
(Name of Approver)

MAY 12 1992

(Date)

**1.0 TABLE OF CONTENTS**

1.0	TABLE OF CONTENTS .....	1
2.0	PURPOSE AND SCOPE .....	3
3.0	RESPONSIBILITIES AND QUALIFICATIONS .....	4
4.0	REFERENCES .....	5
4.1	SOURCE REFERENCES .....	5
4.2	INTERNAL REFERENCES .....	5
5.0	EQUIPMENT REQUIRED .....	6
5.1	EQUIPMENT AND SUPPLIES TO BE PROVIDED AT THE MDF .....	6
5.2	EQUIPMENT AND SUPPLIES TO BE PROVIDED BY MDF USERS .....	8
5.3	MDF CONFIGURATION .....	9
5.3.1	Equipment Decontamination Pad .....	9
5.3.2	Environmental Liquids Management Area .....	9
5.3.3	The Drum Transfer Area .....	11
6.0	PROCEDURES .....	11
6.1	INTRODUCTION .....	11
6.2	DESIGNATED SUBCONTRACTOR (DSC) .....	12
6.2.1	Coordinating With MDF Users .....	12
6.2.2	Routine Maintenance, Operations, and Minor Repairs .....	13
6.3	MDF USERS .....	14

REVIEWED FOR CLASSIFICATION/UCNI

By *[Signature]*  
Date *March 1, 1992*

## DECONTAMINATION FACILITY OPERATIONS

---

<b>EG&amp;G ROCKY FLATS PLANT</b>	<b>Manual:</b>	<b>5-21000-OPS</b>
<b>EMD MANUAL OPERATION SOP</b>	<b>Procedure No.:</b>	<b>FO.12, Rev. 2</b>
	<b>Page:</b>	<b>2 of 21</b>
	<b>Effective Date:</b>	<b>March 1, 1992</b>
<b>Category 2</b>	<b>Organization:</b>	<b>Environmental Management</b>

---

6.3.1	Coordinating With the DSC .....	15
6.3.2	Operations At the MDF .....	15
6.4	PERSONAL DECONTAMINATION .....	16
6.5	ENVIRONMENTAL MATERIALS HANDLING AND SAMPLING .....	16
6.5.1	Unrepairable Equipment And PPE Used By DSC Employees .....	17
6.5.2	PPE Worn by MDF Users .....	17
6.5.3	Environmental Liquids .....	17
6.5.4	Sediments in the Decontamination Pad Floor Drain Sump and Sediments in the Sedimentation Tank Bottoms .....	18
6.6	DRUM TRANSFER AND DRUM STAGING .....	19
6.6.1	Drum Transfer Procedure .....	19
6.6.2	Drum Staging Procedures .....	19
7.0	DOCUMENTATION .....	20

### LIST OF FIGURES

FIGURE FO.12-1	MDF CONFIGURATION .....	10
----------------	-------------------------	----

## DECONTAMINATION FACILITY OPERATIONS

---

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	3 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

### 2.0 PURPOSE AND SCOPE

This standard operating procedure (SOP) describes procedures that will be used at the Rocky Flats Plant (RFP) Main Decontamination Facility (MDF). MDF as used in the context of environmental materials management at RFP refers to a fixed facility that will generally include a paved and bermed area equipped with sumps, pumps, and pressurized sprays intended for use in decontaminating large items that could not conveniently be decontaminated in a relatively uncontrolled environment. The terminology MDF should not be interpreted to refer to any specific RFP decontamination facility.

This SOP is applicable to all decontamination operations conducted as part of the Environmental Management (EM) Program and is specifically applicable to heavy equipment and environmental materials containers (drums) used in a work area characterized by EG&G as potentially contaminated (See SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers). This SOP is also specifically applicable to heavy equipment and environmental materials containers used in a work area characterized as not potentially contaminated but where field monitoring conducted during intrusive activities indicates the possible presence of contamination. This SOP does not apply to heavy equipment and environmental materials containers used in a work area characterized by EG&G as not potentially contaminated if field monitoring conducted during intrusive activities does not indicate the presence of contamination. However, a subcontractor may choose to follow the procedures established by this SOP as general practice.

## DECONTAMINATION FACILITY OPERATIONS

---

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	4 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

### 3.0 RESPONSIBILITIES AND QUALIFICATIONS

The EG&G project manager has the overall responsibility for implementing this SOP and will construct MDFs as needed; provide certain equipment, as listed in Subsection 5.1, Equipment To Be Provided at the MDF; and designate a subcontractor to be responsible for the day-to-day operation of the MDF. For the purposes of this SOP, the designated subcontractor is referred to as the DSC.

The subcontractor designated to maintain the MDF is responsible for providing general use equipment; coordinating with MDF users to ensure efficient utilization of the MDF; performing routine maintenance, operations, and minor repairs to equipment and facilities; managing environmental liquids and residual sediments that are brought to the MDF; and maintaining documentation.

Individual subcontracting companies using the MDF are responsible for coordinating with the DSC, providing the items specified in Subsection 5.2 and as described in Subsection 6.3, conducting the decontamination of their own equipment, and verifying the decontamination effectiveness. Additional equipment-specific decontamination guidance is available within SOP FO.4, Heavy Equipment Decontamination; SOP FO.5, Handling of Purge and Development Water; SOP FO.7, Handling of Decontamination Water and Wash Water; SOP FO.8, Handling of Drilling Fluids and Cuttings; and SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers.

All subcontractor's project managers will be responsible for assigning project staff to implement this SOP and for ensuring the heavy equipment and environmental materials containers used by the subcontractor are decontaminated according to the procedures outlined in this SOP.

All personnel performing these procedures are required to have the appropriate health and safety training as specified in 29 CFR 1910.120. In addition, all personnel are required to have a complete

## DECONTAMINATION FACILITY OPERATIONS

---

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	5 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

understanding of the procedures described within this SOP and receive specific training regarding these procedures, if necessary. Personnel using light or heavy equipment, scientific monitoring devices, or operating vehicles must have appropriate training or licenses.

### 4.0 REFERENCES

#### 4.1 SOURCE REFERENCES

The following is a list of references reviewed prior to the writing of this procedure:

A Compendium of Superfund Field Operations Methods. EPA/540/P-87/001. December 1987.

Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. NIOSH/OSHA/USCG/EPA. October 1985.

Nuclear Weapon Accident Response Procedures (NARP) Manual. The Defense Nuclear Agency. January 1984. Change 1, July 1984.

Radiological Operating Instruction 3.1. Performance of Surface Contamination Surveys. EG&G.

Standard Operating Safety Guides. EPA. November 1984.

#### 4.2 INTERNAL REFERENCES

Related SOPs cross-referenced in this SOP are as follows:

- SOP FO.3, General Equipment Decontamination
- SOP FO.4, Heavy Equipment Decontamination

## DECONTAMINATION FACILITY OPERATIONS

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	6 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

- SOP FO.6, Handling of Personal Protective Equipment
- SOP FO.7, Handling of Decontamination Water and Wash Water
- SOP FO.8, Handling of Drilling Fluids and Cuttings
- SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers
- SOP FO.13, Containerizing, Preserving, Handling, and Shipping of Soil and Water Samples
- SOP FO.16, Field Radiological Measurements
- SOP SW.6, Sediment Sampling

### 5.0 EQUIPMENT REQUIRED

Various equipment items, supplies, and structures must be provided for the MDF to function as intended. In an attempt to simplify this subject, the equipment listing has been divided into these subsections: Subsection 5.1, Equipment and Supplies to be Provided at the MDF; Subsection 5.2, Equipment and Supplies to be Provided by MDF Users; and Subsection 5.3, MDF Configuration.

#### 5.1 EQUIPMENT AND SUPPLIES TO BE PROVIDED AT THE MDF

The following is a list of equipment that will be provided at the MDF for general use. The party responsible (EG&G or the DSC) for providing each item is indicated in parentheses.

- Drains and tanks for the collection and holding of decontamination and rinse solutions (EG&G)
- One or more moveable tanks for containing RFP tap water for use during decontamination (DSC)



## DECONTAMINATION FACILITY OPERATIONS

---

<b>EG&amp;G ROCKY FLATS PLANT</b>	<b>Manual:</b>	<b>5-21000-OPS</b>
<b>EMD MANUAL OPERATION SOP</b>	<b>Procedure No.:</b>	<b>FO.12, Rev. 2</b>
	<b>Page:</b>	<b>7 of 21</b>
	<b>Effective Date:</b>	<b>March 1, 1992</b>
<b>Category 2</b>	<b>Organization:</b>	<b>Environmental Management</b>

---

- Pumps for moving liquids from one container to another container (DSC)
- High pressure steam cleaner and high pressure wash and rinse systems (DSC)
- Portable power generator (DSC)
- Splash curtains (EG&G)
- Wooden pallets (EG&G)
- A rough terrain forklift or equivalent heavy equipment item outfitted with a "drum grapppler" (DSC)
- A drum rack designed to hold empty 55-gallon drums or 30-gallon in a manner that promotes an outward flow of decontamination fluids from the drum interior as it is being decontaminated (EG&G)
- Flammable storage facility/cabinet (EG&G)
- A "dumpster" for containerizing uncontaminated environmental materials (EG&G)
- A two wheeled "dolly" designed to carry 55-gallon drums (DSC)
- Plastic sheeting (DSC)
- Long and short-handled stiff bristle brushes (DSC)
- Wire brushes (DSC)

## DECONTAMINATION FACILITY OPERATIONS

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	8 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

- Wash and rinse buckets for equipment interiors (DSC)
- Premoistened towelettes (DSC) and Kimwipes
- Duct tape or equivalent (DSC)
- Windsock or equivalent method for decontamination workers to determine the wind direction (DSC)
- A bottom filling bailer or equivalent to collect water samples (DSC)
- Gray, removable-top 55-gallon or 30-gallon drums (EG&G)

### 5.2 EQUIPMENT AND SUPPLIES TO BE PROVIDED BY MDF USERS

Each subcontractor that uses the MDF will provide the following equipment and supplies as needed to complete their decontamination activities:

- Personal protective equipment (PPE) as required by the site-specific Health and Safety Plan
- Environmental materials containers (obtained from EG&G) for non-reusable items required to complete decontamination, and soils dislodged during decontamination
- An organic vapor detector (OVD) and a radiation monitor to screen equipment and environmental materials containers for an estimate of the effectiveness of decontamination efforts

## DECONTAMINATION FACILITY OPERATIONS

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	9 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

- Wash and rinse buckets necessary to establish a personal decontamination line
- Any equipment or task specific decontamination fluids required by a SOP or SOPA but that are not listed as being available at the MDF
- Blank environmental materials container labels to replace any completed labels that become dislodged or rendered illegible during the decontamination process

### 5.3 MDF CONFIGURATION

A typical MDF is depicted in Figure FO.12-1, MDF Configuration. A MDF consists of three functional areas, the equipment decontamination pad, the environmental liquids management area, and the drum transfer area.

#### 5.3.1 Equipment Decontamination Pad

The equipment decontamination pad includes a drainage system, a sump for collection of fluid runoff, and a pumping system for moving fluids from the sump to the environmental liquids management area. Wet sediments will be removed from the sump manually.

#### 5.3.2 Environmental Liquids Management Area

The environmental liquids management area consists of large holding tanks enclosed by berms, and sedimentation tanks located between the bermed area and the decontamination pad. All environmental liquids will be emptied into the sedimentation tanks, and when the residual sediments have settled, the relatively sediment free liquids will be pumped from the sedimentation tanks to the large holding tanks.

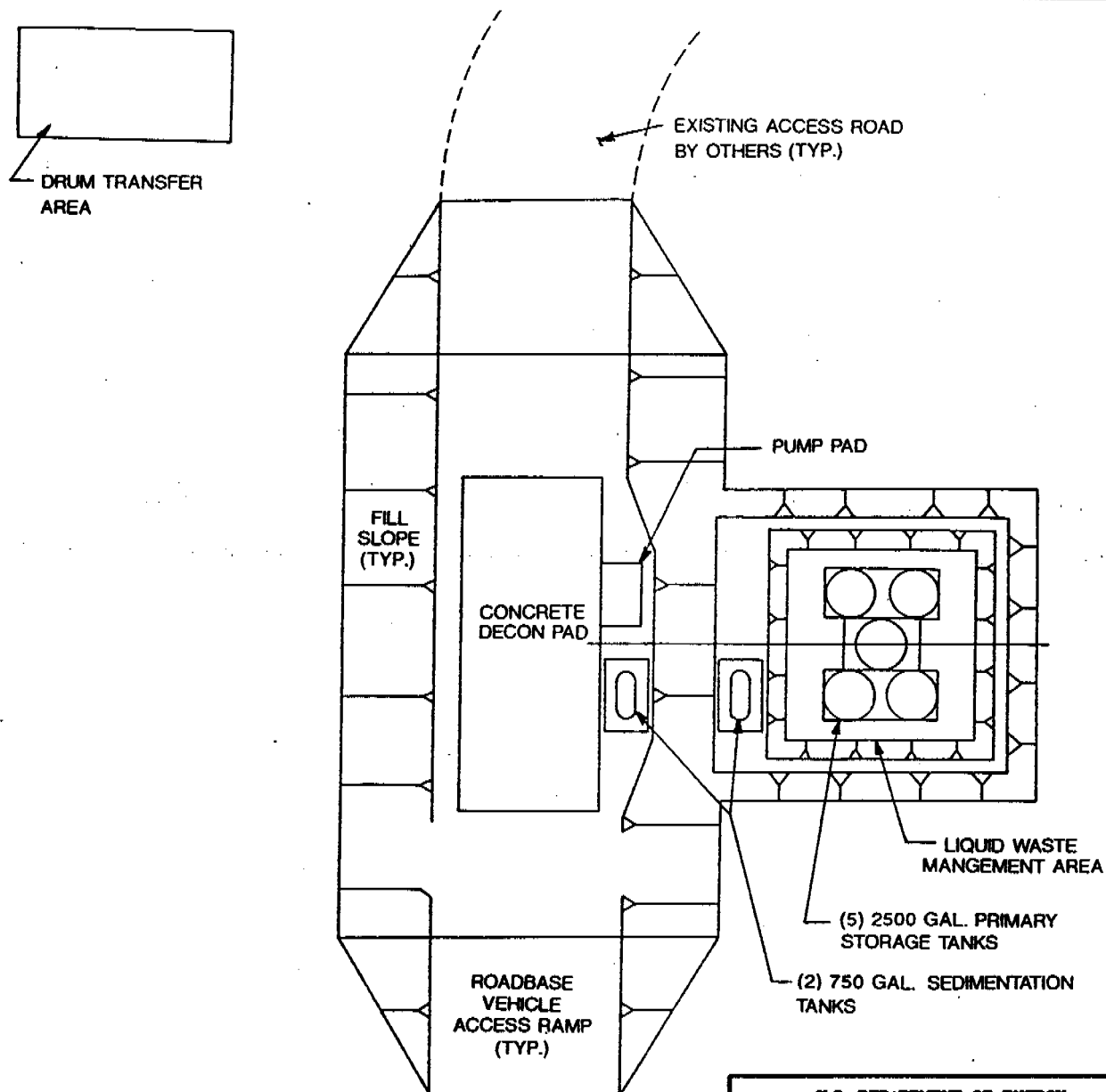
## DECONTAMINATION FACILITY OPERATIONS

EG&G ROCKY FLATS PLANT  
EMD MANUAL OPERATION SOP

Manual:  
Procedure No.:  
Page:  
Effective Date:  
Organization:

5-21000-OPS  
FO.12, Rev. 2  
10 of 21  
March 1, 1992  
Environmental Management

Category 2



TYPICAL MDF CONFIGURATION

U.S. DEPARTMENT OF ENERGY  
Rocky Flats Plant, Golden, Colorado  
OPERABLE UNIT 2  
PHASE II RFI/RI WORK PLAN (BEDROCK)

RFP-903 PAD  
DRILLING

Figure FO.12-1

1/24/91

## DECONTAMINATION FACILITY OPERATIONS

**EG&G ROCKY FLATS PLANT  
EMD MANUAL OPERATION SOP**

**Manual:  
Procedure No.:  
Page:  
Effective Date:  
Organization:**

**5-21000-OPS  
FO.12, Rev. 2  
11 of 21  
March 1, 1992  
Environmental Management**

**Category 2**

### **5.3.3 The Drum Transfer Area**

The drum transfer area is the point at which subcontractors transfer colored drums containing environmental materials suspected of containing radioactive and/or hazardous substances to EG&G representatives. Transfers of filled drums will normally occur when Waste Operations notifies EM personnel that storage space is available. Partially filled environmental materials drums will be stored at a temporary staging area at the drum transfer area until they are retrieved for complete filling. When full, drums will be placed at the designated drum transfer point.

## **6.0 PROCEDURES**

### **6.1 INTRODUCTION**

Effective decontamination procedures are required to minimize the potential for cross-contamination, offsite contaminant migration, and personnel exposure from improperly decontaminated equipment. Heavy equipment and environmental materials containers may become contaminated in either of the two following scenarios: (1) when used in a work area characterized as potentially contaminated such as an Individual Hazardous Substance Site (IHSS) or (2) when used in a work area characterized as not potentially contaminated but where field monitoring conducted during field activities indicates the possible presence of contamination. Because contamination is not always easily discernible, it will be assumed that equipment used in one of the two preceding scenarios has been contaminated and will, therefore, require decontamination.

Procedures established in this SOP are not applicable for heavy equipment used in a work area characterized as not potentially contaminated where no verified positive detections were encountered during field monitoring. However, heavy equipment used in these work areas may be washed at the MDF. Form FO.4A, Heavy Equipment Decontamination/Wash Checklist and Record, Sections I, II, and III, will be completed for heavy equipment decontaminated or washed

## DECONTAMINATION FACILITY OPERATIONS

**EG&G ROCKY FLATS PLANT  
EMD MANUAL OPERATION SOP**

**Manual:  
Procedure No.:  
Page:  
Effective Date:  
Organization:**

**5-21000-OPS  
FO.12, Rev. 2  
12 of 21  
March 1, 1992  
Environmental Management**

**Category 2**

(See SOP FO.4, Heavy Equipment Decontamination).

### **6.2 DESIGNATED SUBCONTRACTOR (DSC)**

The subcontractor designated to maintain the MDF is responsible for providing general use equipment as specified in Subsection 5.1; coordinating with MDF users to ensure efficient utilization of the MDF; performing routine maintenance, operations, and minor repairs to equipment and facilities as described below; managing environmental liquids and residual sediments (as described in Subsection 6.5) that are placed at the MDF; and maintaining documentation as described in Section 7.0.

#### **6.2.1 Coordinating With MDF Users**

The DSC will coordinate with MDF Users by accomplishing the following:

- Provide SOP training on the use of the MDF.
- Maintaining a roster of MDF users and a point of contact to receive information regarding the operation of the MDF
- Devising and posting a system of priorities for use of the MDF
- Informing other subcontractors of any changes to this SOP
- Scheduling foreseeable periods of "downtime" and notifying other subcontractors of both scheduled and unscheduled periods of "downtime"
- Scheduling use of the rough terrain forklift

## DECONTAMINATION FACILITY OPERATIONS

**EG&G ROCKY FLATS PLANT  
EMD MANUAL OPERATION SOP**

**Manual:  
Procedure No.:  
Page:  
Effective Date:  
Organization:**

**5-21000-OPS  
FO.12, Rev. 2  
13 of 21  
March 1, 1992  
Environmental Management**

**Category 2**

### **6.2.2 Routine Maintenance, Operations, and Minor Repairs**

At the beginning of each day of EM field operations, the DSC will perform the following:

- Visually inspect the MDF to verify that the required equipment and supplies are on-hand.
- Reinstall splash screens if they have been removed and repair any tears by applying duct tape or equivalent over the tear on both sides of the curtain.
- Perform routine maintenance on equipment by following instructions in the equipment owners manuals.
- Fill decontamination fluid and rinse fluid reservoirs.
- Pump any liquids in the sedimentation tanks into a holding tank. If, after the liquid has been pumped, a sufficient amount of sediment has accumulated, the sediment will be drummed, sampled, and handled as described in Subsection 6.5.4.
- When necessary, use the steam generator to deice the MDF.
- Complete Form FO.12A Equipment Decontamination Pad Daily Inspection Checklist.

## DECONTAMINATION FACILITY OPERATIONS

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	14 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

At the end of each day of EM field operations, the DSC will perform the following:

- Decontaminate all MDF structural surfaces, powered equipment, and nonpowered equipment.
- Use an OVD to monitor the MDF surfaces, then collect and have radiological smear tests counted, as described in SOP FO.16, Field Radiological Measurements. If either the OVD or the smear tests indicate the presence of contamination, the involved surfaces will be decontaminated again and remonitored.
- Drain and winterize all equipment that could be damaged internally by the freezing of fluids (Note: Ethylene glycol will not be used as an antifreeze in any of the pressurized spray systems).
- Pump any liquids from the floor sump into a decanting tank.

### 6.3 MDF USERS

Subcontractors using the MDF are responsible for providing the items specified in Subsection 5.2; conducting decontamination of equipment and verification of decontamination effectiveness as described previously in Subsection 6.1; coordinating with the DSC; notifying the designated EG&G SSO; and conducting operations at the MDF as described below.



## DECONTAMINATION FACILITY OPERATIONS

**EG&G ROCKY FLATS PLANT  
EMD MANUAL OPERATION SOP**

**Manual:  
Procedure No.:  
Page:  
Effective Date:  
Organization:**

**5-21000-OPS  
FO.12, Rev. 2  
15 of 21  
March 1, 1992  
Environmental Management**

**Category 2**

### **6.3.1 Coordinating With the DSC**

Before a subcontractor may initially use the MDF, that subcontractor must register with the DSC and designate an employee to serve as a point of contact to interface with the DSC (see subsection 6.2.1). MDF users are to notify the DSC if any above normal usage of the MDF is anticipated.

### **6.3.2 Operations At the MDF**

- Splash screens must be closed if pressurized sprays are to be used.
- Subcontractors should request that DSC personnel pump the MDF floor drain sump if planned decontamination activities are likely to cause the sump to overflow.
- The "buddy system" will be employed while decontamination activities are being conducted with the splash screens closed.
- Decontamination procedures for heavy equipment and/or environmental materials containers will preempt equipment washing operations described in Subsection 6.1.
- Items from different work areas will not be decontaminated simultaneously within the screened-in area of the MDF.
- Each MDF user will steam clean all surfaces within the screened portion of the MDF after each use. Screens used to enclose the decontamination pad and equipment used during equipment decontamination will be steam cleaned.

## DECONTAMINATION FACILITY OPERATIONS

---

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	16 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

### 6.4 PERSONAL DECONTAMINATION

- MDF users will bring a sufficient quantity of containers to the MDF to establish a personal decontamination line as required by the site-specific health and safety plan. DSC personnel will decontaminate the personal decontamination containers that hold decontamination and rinse fluids.
- DSC personnel will conduct personal decontamination as described in the applicable Health and Safety Plan.
- Personal decontamination lines will not be established downwind of any pressurized sprays being used at the MDF.

### 6.5 ENVIRONMENTAL MATERIALS HANDLING AND SAMPLING

Environmental materials generated at the MDF will normally fit within one of the following categories.

- Unrepairable equipment
- PPE worn by MDF users decontaminating equipment or environmental materials containers
- PPE worn by DSC employees working at the MDF
- Water brought to the MDF by subcontractors and water used to decontaminate equipment and environmental materials containers

## DECONTAMINATION FACILITY OPERATIONS

---

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	17 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

- Sediments in the decontamination pad floor drain sump and sediments in the sedimentation tank's bottom

The handling and sampling of each environmental materials category is described in the following sections. Any subcontractor that anticipates environmental materials other than those listed above will coordinate the proposed handling procedures with the appropriate EG&G representative before implementing the proposed procedures.

### 6.5.1 Unrepairable Equipment And PPE Worn By DSC Employees

Unrepairable equipment and PPE used by DSC employees working at the MDF will be thoroughly decontaminated and placed in a dumpster for uncontaminated environmental materials.

### 6.5.2 PPE Worn by MDF Users

PPE worn during decontamination of equipment and/or environmental materials containers used in the field will be disposed of in the same manner as PPE used during the field operation that warranted the decontamination activity.

### 6.5.3 Environmental Liquids

Environmental liquids will be emptied into the sedimentation tanks before being pumped into holding tanks. When a holding tank becomes full, the DSC will open the tank, monitor the tank interior with an OVD, and will use a bottom filling bailer or equivalent to collect a sample. Water samples will be analyzed by an EG&G approved laboratory for the target compound list (TCL) volatiles. The sampler will be decontaminated as described in SOP FO.3, General Equipment Decontamination, before and after each sample collection event. The sample will be collected from the middle portion of the tank. As the bailer is removed from the holding tank, its contents will

## DECONTAMINATION FACILITY OPERATIONS

---

<b>EG&amp;G ROCKY FLATS PLANT</b>	<b>Manual:</b>	<b>5-21000-OPS</b>
<b>EMD MANUAL OPERATION SOP</b>	<b>Procedure No.:</b>	<b>FO.12, Rev. 2</b>
	<b>Page:</b>	<b>18 of 21</b>
	<b>Effective Date:</b>	<b>March 1, 1992</b>
<b>Category 2</b>	<b>Organization:</b>	<b>Environmental Management</b>

---

be emptied into a sample container and the container sealed. The sample container exterior will then be decontaminated and the sample transferred to the DSC's sample manager for marking and handling as described in SOP FO.13, Containerizing, Preserving, Handling, and Shipping of Soil and Water Samples. All samples will be marked to reflect the holding tank they were drawn from. After sampling, the tank will be sealed to prevent the addition of more water after sampling has occurred.

Results of sample analysis will be used by an EG&G representative to determine the disposition of the tank's contents. If the total concentration of TCL volatile organics is less than 1 part per million (ppm), the DSC will notify EG&G Waste Operations personnel who will use an appropriately sized water container to transport the holding tank contents to the EG&G evaporation tank. If the total TCL volatile organics concentration is greater than 1 ppm, the DSC will pump approximately one-half of the holding tank's contents into a separate holding tank and then add water from either an unsampled holding tank or from the settling basins. Resampling will be accomplished and the analytical results used to determine how each holding tank's contents will be handled. These procedures will be conducted every time a holding tank becomes full.

### **6.5.4 Sediments in the Decontamination Pad Floor Drain Sump and Sediments in the Sedimentation Tank Bottoms**

Sediments generated at the MDF will be composited in gray 55-gallon 17C drums. Prior to the filling of the drum, two liters of desiccant will be placed in the bottom of the drum and two additional liters will be put into the drum when the drum has been filled half full. Sediments will be placed in the drum up to approximately two inches from the top. Gray drums used by the DSC will be obtained, marked, and handled as described in SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers. At the end of each day of operation, any sediments that remain in the MDF floor drain sump will be placed into the same sedimentation tank as the water that was pumped from the sump. If at the beginning of each day of operation, the depth of

## DECONTAMINATION FACILITY OPERATIONS

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<b>EG&amp;G ROCKY FLATS PLANT</b>	<b>Manual:</b>	<b>5-21000-OPS</b>
<b>EMD MANUAL OPERATION SOP</b>	<b>Procedure No.:</b>	<b>FO.12, Rev. 2</b>
	<b>Page:</b>	<b>19 of 21</b>
	<b>Effective Date:</b>	<b>March 1, 1992</b>
<b>Category 2</b>	<b>Organization:</b>	<b>Environmental Management</b>

---

sediments remaining in the settling basins appears to be sufficient to fill a 55-gallon 17C drum, the sediment will be placed in a drum and representative sediment samples will be collected using the General Sampling Procedure for collecting sediment material (See SOP GW.6, Sediment Sampling). Collected samples will be transferred to the DSC's designated representative to be analyzed for target analyte list (TAL) metals; TCL analytes; volatiles, semi-volatiles, pesticides/PCBs; water quality parameters, pH, nitrate, and percent solids; and radionuclides.

### 6.6 DRUM TRANSFER AND DRUM STAGING

The drum transfer area and the drum staging area at the MDF will be identified by signs and each area will be delineated by rope and/or wire.

#### 6.6.1 Drum Transfer Procedures

Filled drums will be sealed and marked as described in SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers, before being transported to the MDF. At the MDF, each subcontractor will decontaminate the exterior of the filled drums (See SOP FO.4, Heavy Equipment Decontamination) and place each drum at the drum transfer area for custody transfer to EG&G Waste Operations. Filled drums will be RAD monitored if the containers were found to be radioactively contaminated during field monitoring (see SOP FO.16, Field Radiological Measurements).

Subcontractors will maintain a Drum Field Log Form (See SOP FO.10) on each drum issued to them by EG&G. The Drum Field Log Form is partially completed in the field and documents the type of environmental materials contained in the drum. When EG&G Waste Operations personnel take custody of the drums, subcontractor personnel will complete the Drum Field Log Form by recording the name of the EG&G representative receiving the drum.

## DECONTAMINATION FACILITY OPERATIONS

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EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	20 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

### 6.6.2 Drum Staging Procedures

Partially-filled drums will be sealed and marked as described in SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers, before being transported to the MDF. At the MDF, each subcontractor will decontaminate the partially-filled drums (See SOP FO.4, Heavy Equipment Decontamination) and place each partially-filled drum at the drum staging area.

It is the responsibility of each subcontractor to maintain Drum Field Log Forms that correspond to the drums placed at the drum staging area and to retrieve and complete the filling of those drums at the first opportunity. The "first opportunity" is defined as the next field activity likely to generate environmental materials that are suitable for placement in the staged drums.

## 7.0 DOCUMENTATION

The DSC responsible for operation of the MDF will maintain a bound activities log book. The activities log is intended to reflect the daily activities accomplished in order to operate the MDF. Additionally, Form FO.12A, Equipment Decontamination Pad Daily Inspection Checklist, will be completed on a daily basis.

A Drum Field Log Form (Form FO.10A) will be kept on each drum issued to the DSC until the drum is returned to an EG&G representative. A copy of the Drum Field Log Form will be turned into the EG&G representative within a week of being filled.

The DSC will conduct an inspection of the drums within the temporary staging area or any gray drum used for general use. The inspection should be conducted at least weekly. The Drum Inspection Form (Form FO.10B) will be used to document these inspections.

A Contaminant Characterization Form (FO.10C) will be used for the characterization of the

## DECONTAMINATION FACILITY OPERATIONS

---

EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD MANUAL OPERATION SOP	Procedure No.:	FO.12, Rev. 2
	Page:	21 of 21
	Effective Date:	March 1, 1992
Category 2	Organization:	Environmental Management

---

environmental materials generated at the MDF that have been placed in gray drums and are suspected to contain radioactive and/or hazardous substances. (The preceding forms are described in detail in SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers.)

## EQUIPMENT DECONTAMINATION PAD DAILY INSPECTION CHECKLIST

## Facility and Equipment Inspection

Date \_\_\_\_\_

Facilities and Equipment Operational: \_\_\_\_\_ Yes \_\_\_\_\_ No (if no explain and describe corrective action)

The Equipment Decontamination Pad is to be visually inspected at the beginning of each day of Environmental Management (EM) field operations. All deficiencies should be reported to the Decontamination Operations Manager immediately. Decontamination operations should not commence until all deficiencies have been corrected.

## EQUIPMENT DECONTAMINATION PAD

ACCEPT

NONACCEPT

COMMENTS

- |     |   |  |  |  |
|-----|---|--|--|--|
| 1)  | Check fill slope for excessive erosion or cracking.   |  |  |  |
| 2)  | Check fill slope for unusual staining which may be indicative of leakage.   |  |  |  |
| 3)  | Check copolymer pad coating for cracking, peeling, bubbling, staining, or any unusual appearance.                   |  |  |  |
| 4)  | Check concrete decontamination pad for cracking, chipping, spalling, or any unusual appearance.                     |  |  |  |
| 5)  | Check that floor sump has been pumped clean of any liquids.   |  |  |  |
| 6)  | Check splash screens for any tears and inspect integrity of previous repairs.                                       |  |  |  |
| 7)  | Inspect all tanks, joints, gauges, pipes, and couplings for any drips, leaks, residues, or signs of corrosion.      |  |  |  |
| 8)  | Inspect berms around environmental liquids management area for breaches, cracks, and/or signs of excessive erosion. |  |  |  |
| 9)  | Estimate the remaining capacity in each of the environmental liquids tanks as well as the sedimentation tanks.      |  |  |  |
| 10) | Make sure decontamination fluid and rinse fluid reservoir levels are adequate.                                      |  |  |  |
| 11) | Check tank tie downs and make sure they are tight.  |  |  |  |
| 12) | Inspect monitor pipe weekly for fluid leaking to the inner liner.   |  |  |  |
| 13) | Ensure that all signs and labels are in place.  |  |  |  |


## MDF Waste Management Activities

Liquid Waste Holding Tanks Sampled: \_\_\_\_\_

Tank(s) Number(s) \_\_\_\_\_

MDF Pad Sampling Liquid Pumped and Dredger Removed? \_\_\_\_\_ Yes \_\_\_\_\_ No (if No explain)

## Results of MDF Facility and Equipment Monitoring.

OVD \_\_\_\_\_ RAD \_\_\_\_\_

(Name) \_\_\_\_\_

(Subcontractor) \_\_\_\_\_

(Phone) \_\_\_\_\_

(Signature) \_\_\_\_\_